

CLIPPEDIMAGE= JP411092749A

PAT-NO: JP411092749A

DOCUMENT-IDENTIFIER: JP 11092749 A

TITLE: ABRASIVE COMPOSITION

PUBN-DATE: April 6, 1999

INVENTOR-INFORMATION:

NAME

YAMADA, TSUTOMU

OKAJIMA, TAIZO

OOTANI, TAKANORI

MORINAGA, HITOSHI

ASSIGNEE-INFORMATION:

NAME

FUJIMI INC

COUNTRY

N/A

APPL-NO: JP10212534

APPL-DATE: July 28, 1998

INT-CL (IPC): C09K003/14

ABSTRACT:

PROBLEM TO BE SOLVED: To obtain an abrasive composition which shows an improved rate of abrasion and can give an abraded object having excellent surface appearance by mixing water with alumina, boehmite and at least one polyamine type chelating compound or polyaminocarboxylic acid type chelating compound.

SOLUTION: The alumina used is desirably  $\alpha$ -alumina and has a mean particle diameter of usually 0.1-10  $\mu$ m. The amount of the alumina used is usually 1-30 wt.% based on the total weight of the composition. The chelating compound used is desirably a polyamine type chelating compound selected among

ethylenediamine, 2,2'-bipyridine and diethylenetriamine or  
a  
polyaminecarboxylic acid type chelating compound selected  
among  
nitrilotriacetic acid, ethylenediaminetetraacetic acid,  
diethylenetriaminepentaacetic acid or a sodium or potassium  
salt thereof. The  
amount of the chelate compound used is usually 0.01-20 wt.%  
(about 0.5-50 wt.%,  
based on the alumina).

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DERWENT-ACC-NO: 1999-329991  
DERWENT-WEEK: 200033  
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TITLE: Lapping powder composition - has water, alumina,  
boehmite, polyamine  
group chelate compound and\or polyamino carboxylic acid  
group chelate compound

PATENT-ASSIGNEE: FUJIMI INC KK[FUJIN]

PRIORITY-DATA: 1990JP-0227580 (August 29, 1990)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
JP 11092749 A	April 6, 1999	N/A
004	C09K 003/14	
JP 3055060 B2	June 19, 2000	N/A
004	C09K 003/14	

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
JP 11092749A	Div ex	1991JP-0052750
March 18, 1991		
JP 11092749A	N/A	1998JP-0212534
March 18, 1991		
JP 3055060B2	Div ex	1991JP-0052750
March 18, 1991		
JP 3055060B2	N/A	1998JP-0212534
March 18, 1991		
JP 3055060B2	Previous Publ.	JP 11092749
N/A		

INT-CL (IPC): B24B037/00; C09K003/14

ABSTRACTED-PUB-NO: JP 11092749A

BASIC-ABSTRACT: NOVELTY - The lapping powder composition  
comprises water,  
alumina and a chelate compound. The composition further  
includes boehmite or  
an aluminium salt, and the chelate includes disodium  
ethylene diamine  
tetra-acetate. The aluminium salt includes aluminum

sulphate.

USE - For precision polishing silicon and compound  
semiconductor substrate,  
magnetic memory hard disc and laser device.

ADVANTAGE - High abrasive speed without surface problems  
such as scratches,  
pits and cracks on polished surface can be achieved by the  
material.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS:

LAP POWDER COMPOSITION WATER ALUMINA BOEHMITE GROUP CHELATE  
COMPOUND CARBOXYLIC  
ACID GROUP CHELATE COMPOUND

DERWENT-CLASS: E19 G04 L02 L03 P61 U11

CPI-CODES: G04-B04; L02-F04; L04-C26;

EPI-CODES: U11-A10; U11-C06A1A;

CHEMICAL-CODES:

Chemical Indexing M3 \*01\*

Fragmentation Code

H1 H103 H181 H182 H183 J0 J013 J014 J1 J173  
M280 M311 M312 M321 M322 M323 M332 M342 M349 M381  
M383 M391 M392 M393 M416 M620 M630 M782 M903 M904  
Q337 Q453 Q454 R036

Markush Compounds

199928-FJ501-K 199928-FJ501-M

Chemical Indexing M3 \*02\*

Fragmentation Code

A313 A940 C101 C108 C550 C730 C801 C802 C804 C805  
C807 M411 M782 M903 M904 Q337 Q453 Q454 R036

Markush Compounds

199928-FJ502-K 199928-FJ502-M

Chemical Indexing M3 \*03\*

Fragmentation Code

A313 A940 C108 C550 C730 C801 C802 C803 C804 C805  
C807 M411 M782 M903 M904 M910 Q337 Q453 Q454 R036

Specific Compounds

01544K 01544M

Registry Numbers

1544U

Chemical Indexing M3 \*04\*

Fragmentation Code

F012 F019 F431 F499 M1 M116 M280 M320 M413 M510  
M522 M530 M540 M782 M903 M904 M910 Q337 Q453 Q454  
R036

Specific Compounds

01237K 01237M

Registry Numbers

1237U

Chemical Indexing M3 \*05\*

Fragmentation Code

H1 H101 H102 H183 M280 M312 M322 M332 M342 M383  
M392 M416 M620 M782 M903 M904 M910 Q337 Q453 Q454  
R036

Specific Compounds

00928K 00928M

Registry Numbers

0928U

Chemical Indexing M3 \*06\*

Fragmentation Code

H1 H101 H182 M280 M312 M321 M332 M342 M383 M391  
M416 M620 M782 M903 M904 M910 Q337 Q453 Q454 R036

Specific Compounds

00819K 00819M

Registry Numbers

0819U

UNLINKED-DERWENT-REGISTRY-NUMBERS: 0195U; 0268U ; 0819U ;  
0928U ; 1121U ; 1237U  
; 1544U

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## PATENT ABSTRACTS OF JAPAN

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C09K 3/14

(21)Application number : 10-212534

(71)Applicant : FUJIMI INC

(22)Date of filing : 28.07.1998

(72)Inventor : YAMADA TSUTOMU  
OKAJIMA TAIZO  
OOTANI TAKANORI  
MORINAGA HITOSHI

(30)Priority

Priority number : 02227580 Priority date : 29.08.1990 Priority country : JP

### (54) ABRASIVE COMPOSITION

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain an abrasive composition which shows an improved rate of abrasion and can give an abraded object having excellent surface appearance by mixing water with alumina, boehmite and at least one polyamine type chelating compound or polyaminocarboxylic acid type chelating compound.

SOLUTION: The alumina used is desirably  $\alpha$ -alumina and has a mean particle diameter of usually 0.1-10  $\mu$ m. The amount of the alumina used is usually 1-30 wt.% based on the total weight of the composition. The chelating compound used is desirably a polyamine type chelating compound selected among ethylenediamine, 2,2'-bipyridine and diethylenetriamine or a polyaminocarboxylic acid type chelating compound selected among nitrilotriacetic acid, ethylenediaminetetraacetic acid, diethylenetriaminepentaacetic acid or a sodium or potassium salt thereof. The amount of the chelate compound used is usually 0.01-20 wt.% (about 0.5-50 wt.%, based on the alumina).

### LEGAL STATUS

[Date of request for examination] 28.07.1998

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[Date of registration] 14.04.2000

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3. In the drawings, any words are not translated.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to an abrasive material constituent. In detail, polish efficiency is good and it is related with the abrasive material constituent which can form the outstanding polish front face.

[0002]

[Description of the Prior Art] Although the abrasive material constituent which consists of water and an alumina was known conventionally, polish speed was not enough, and when particle size of an alumina was enlarged in order to gather polish speed, a dry area came to arise on a polish front face, and it was not able to be called what satisfies both polish speed and a surface state.

[0003] Adding various matter to water and an alumina for improvement of polish speed and a surface state is proposed. For example, the abrasive material for synthetic resin which added aluminum salts, such as an aluminium nitrate, an aluminum sulfate, and an aluminum chloride, as a polish accelerator to water and the alumina is proposed by JP,54-89389,A. On the other hand, set to precision polish processing of material, such as silicon which production of a industrial scale increased by leaps and bounds in the past ten years and a compound semiconductor substrate, various kinds of magnetic memory hard disks, and laser parts. it has become a technical problem also with the important cost cut to which a large amount of investment depends on improvement in eye a required hatchet and production speed, and reduction of a poor defective loss at another side, production, an inspection facility, etc. while \*\* and a demand level [ especially as opposed to the smoothness of a processing side and defect-free nature (there need to be no defects, such as a scratch, orange peel, a pit, a nodule, and a crack) ] develop far as compared with the past polish processing technical level therefore, a request of as opposed to [ abrasive material / which is used in these fields ] improvement in a process tolerance and polish speed -- very -- being strong -- it has become As for JP,62-25187,A, it is teaching that nitric-acid aluminum does a facilitatory effect so also in the case of polish of a memory hard disk. Furthermore, the nitrite of ammonium salts, such as salts of inorganic acids, such as a nickel sulfate and oxalic acid aluminum, or an organic acid and a sulfuric acid, and a metal etc. is reported as an additive which raises polish speed and a process tolerance.

[0004]

[Problem(s) to be Solved by the Invention] Polish speed of this invention improves and it aims at offer of the abrasive material constituent with which the ground object which was moreover excellent in the surface state is obtained.

[0005]

[Means for Solving the Problem] This invention persons did learning of the ability to be able to raise the polish result effects, such as the smoothness of a work processing side, or surface-discontinuity (scratch, orange peel, etc.) generating prevention, and also able to raise polish speed simultaneously, when making a boehmite and a chelate nature compound exist in the abrasive material constituent which consists of water and an alumina to obtain the abrasive material constituent which is excellent rather than it satisfies this purpose as a result of repeating research wholeheartedly. The summary of this invention consists in the abrasive material constituent which comes to contain at least one kind chosen from the group which consists of water, an alumina, a boehmite and a polyamine system chelate nature compound, or a poly AMINO carboxylic-acid system chelate nature compound. Hereafter, this invention is further explained to a detail.

[0006] Especially as an alumina used by this invention, although not limited by gamma-alumina, the theta alumina, the alpha alumina, etc., when polish speed is taken into consideration, an alpha alumina is desirable. The content of an alumina is usually 2 - 15 % of the weight preferably one to 30% of the weight to the constituent whole quantity. If too few, polish speed will become small, if many [ conversely / too ], it will become impossible to maintain uniform distribution, slurry viscosity will become excessive, and handling will become difficult. A particle diameter is 0.1-3 micrometers preferably 0.1-10 micrometers in a mean particle diameter, when a process tolerance and polish speed are taken into consideration.

[0007] The chelate nature compound used by this invention is a compound with the multidentate ligand which forms a metal ion and a chelate compound, for example, at least one kind of its poly AMINO carboxylic-acid system chelate nature compound chosen from the group which consists of at least one kind of polyamine system chelate nature compound chosen from the group which consists of an ethylenediamine, 2, and 2'-bipyridine and a diethylenetriamine or a nitrilotriacetic acid, ethylene-diamine-tetraacetic acid, diethylenetriaminepentaacetic acids or these sodium salt, and potassium salt is desirable. The poly AMINO carboxylic-acid system chelate nature compound is especially desirable. The content of the aforementioned chelate nature compound is 0.1 - 10 % of the weight preferably 0.01 to 20% of the weight to the constituent whole quantity, and is usually about 0.5 - 50 % of the weight to an alumina. When there are too few these amounts, it becomes impossible to expect the effect of this invention. Conversely, even if many [ too ], it is not economical, without the addition effect improving. although the detail of having the polish effect excellent in the abrasive material constituent of this invention is unknown, existence of a chelate nature compound, i.e., a polyamine system chelate nature compound, or the poly AMINO carboxylic-acid system chelate nature compound has a certain influence on the distributed state of the alumina in an abrasive material constituent, and the starting distributed state is considered to act in favor of polish processing

[0008] Moreover, if a boehmite is made to exist in the abrasive material constituent of this invention, the further excellent effect can be acquired. A boehmite is a kind of the hydrated alumina displayed with the chemical formula of  $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$  and  $\text{AlOOH}$  or  $\text{H}_2\text{O}$ . a jib -- a site -- etc. -- 250 -- degree C -- about -- pressurization -- hydrothermal -- processing -- carrying out -- or -- or -- a Ziegler process -- compounding -- having -- aluminum -- an organic compound -- [ -- aluminum -- (-- OR --) -- three -- ] -- Generally it is produced by the method of therefore manufacturing to hydrolysis of (however, R is an alkyl group). It is the industrial material widely used as raw materials, such as the antistatic treatment of an alumina

sol, a ceramic binder, and a textiles carpet, water purification processing, cosmetics, a thickener of \*\*\*\*\* , an alumina system catalyst, or a catalyst support. As a boehmite of a fine-particles product, they are KAISER (U.S.) and VISTA, for example. Chemical (U.S.), Condea What is marketed from Chemie (Germany) is mentioned. Fine particles or the boehmite sol of the boehmite distributed by water by this invention is also usable. The content of a boehmite is 0.5 - 10 % of the weight preferably 0.1 to 20% of the weight to the constituent whole quantity, and is usually about 1 - 50 % of the weight to an alumina. conversely, a boehmite content is not much alike, and if few, the effect of the improvement in polish speed is not expectable, and it becomes [ it is not much alike, and / if many apparent viscosity and thixotropy nature will increase, and ] unsuitable physical properties on handling that the ejection from the container of an abrasive material constituent serves as difficulty etc. at the same time the uniform dispersibility of an alumina will be spoiled

[0009] Especially mixed sequence etc. is not restricted that manufacture of the abrasive material constituent of this invention should just carry out mixed stirring of each aforementioned component and the water.

[0010] Moreover, on the occasion of manufacture of this abrasive material constituent, you may add various kinds of well-known additives like the following according to the requirement on polish processing of the kind of workpiece, processing conditions, etc.

[0011] As an additive, water-soluble alcohols like ethanol, propanol, and ethylene glycol for example Alkylbenzene sulfonic-acid soda, a surfactant like the formalin condensate of naphthalenesulfonic acid, Acids like a sulfuric acid, a hydrochloric acid, a nitric acid, and an acetic acid, a ligninsulfonic-acid salt, a carboxymethyl cellulose salt, The celluloses like organic poly anion system matter like a polyacrylate, a cellulose, a carboxymethyl cellulose, and a hydroxyethyl cellulose, an ammonium sulfate, an ammonium chloride, an ammonium acetate, mineral like a magnesium nitrate, etc. are raised.

[0012] in addition -- as pH of the abrasive material constituent of this invention -- 1-8 -- it is 2-7 preferably

[0013] Moreover, it prepares as a comparatively high-concentration undiluted solution, and the abrasive material constituent of this invention can also be used at the time of actual polish processing, diluting. The above-mentioned desirable density range was described as a thing at the time of actual polish processing.

[0014] Although the abrasive material constituent of this invention is used for polish of a metal, glass, plastics, etc., since a polish front face without a defect is obtained, it is suitable for especially polish of a memory hard disk etc.

[0015]

[Embodiments of the Invention] Hereafter, the gestalt of operation of this invention is concretely explained using an example. In addition, this invention is not limited to the gestalt of the operation explained below, unless the summary is exceeded.

[0016]

[Example]

Water was made to distribute examples 1 and 2 and the example 1-3 [manufacture of abrasive material constituent] alpha alumina of comparison (1.5 micrometers of mean particle diameters, 10 micrometers of diameters of grain of maximum size) using a high speed mixer, and the slurry of 8 % of the weight of alpha-alumina concentration was prepared. This was made to carry out addition mixture at a rate given [ the ethylene-diamine-tetraacetic acid and the disodium salt or the diethylenetriaminepentaacetic acid and 5 sodium salt, and the boehmite which are the poly AMINO carboxylic-acid system chelate nature compound ] in Table 1, and the abrasive material constituent was prepared. In addition, as a boehmite, it is Condea. Pural (brand name) SCF made from Chemie (about 20micro of mean particle diameters) was used. Moreover, addition mixture of the poly AMINO carboxylic-acid system chelate nature compound and the boehmite shall not be carried out, addition mixture of the poly AMINO carboxylic-acid system chelate nature compound shall be carried out, and, as for the example 1 of comparison, addition mixture of the boehmite shall not be carried out, as for the examples 2 and 3 of comparison.

[0017] [Polish examination] The substrate of the 3.5 inch memory hard disk (outer diameter of about 95mm) which gave electroless deposition (90 - 92% of nickel, alloy deposit of 10 - 8% of Lynn) of nickel Lynn was used for the aluminum substrate as a workpiece.

[0018] Polish was performed using the double-sided grinder (diameter phi of surface plate 640mm). The suede type polish pad (the product made from the first Race, DOMITEKKUSU 25-0) was stuck on the vertical surface plate of a grinder, and it loaded with five disks, and ground for 3 minutes. Polish conditions are processing pressure force 100 g/cm<sup>2</sup> and lower-lapping-plate rotational frequency 40rpm. It considered as a part for abrasive material amount-of-supply/of 100 cc. After polish, the disk was washed, it dried and average polish speed was found from the decrease of a weight. Moreover, it depended on the visual inspection and the existence grade of surface discontinuity was evaluated.

[0019] This test result is shown in Table 1.

[0020]

[Table 1]

	キレート性化合物		ペー マ イト添 加量 (重量%)	平均研 磨 速 度 ( $\mu\text{m}/\text{分}$ )	表面欠 陥 (スクラ ッチ)
	種 類	添加量 (重量%)			
実施例 1	エチレン ジアミン テトラ酢酸 ・ 2 ナトリ ウム塩	1.0	3.0	0.50	なし
実施例 2	ジエチレン トリアミン ペンタ酢酸 ・ 5 ナトリ ウム塩	1.0	3.0	0.53	なし
比較例 1	なし	0	0	0.29	多し
比較例 2	エチレン ジアミン テトラ酢酸 ・ 2 ナトリ ウム塩	1.0	0	0.35	なし
比較例 3	ジエチレン トリアミン ペンタ酢酸 ・ 5 ナトリ ウム塩	1.0	0	0.38	なし

[0021] The ethylene-diamine-tetraacetic acid and the disodium salt, or the diethylenetriaminepentaacetic acid and 5 sodium salt which is the poly AMINO carboxylic-acid system chelate nature compound so that clearly from Table 1, And the abrasive material constituent of examples 1 and 2 with which addition mixture was carried out and the boehmite was prepared Rather than the abrasive material constituent of the example 1 of comparison with which addition mixture of the poly AMINO carboxylic-acid system chelate nature compound and the boehmite is not carried out The abrasive material constituent of the examples 2 and 3 of comparison with which average polish speed and a process tolerance improve, and addition mixture of the poly AMINO carboxylic-acid system chelate nature compound is carried out, and addition mixture of the boehmite is not carried out shows that average polish speed is improving.

[0022] In addition, although the above-mentioned example illustrated and explained the poly AMINO carboxylic-acid system chelate nature compound, the same effect is acquired even when a polyamine system chelate nature compound is used.

[0023]

[Effect of the Invention] As mentioned above, without generating surface discontinuity in a polish processing side, the abrasive material constituent of this invention which comes to contain at least one kind chosen from the group which consists of water, an alumina, a boehmite and a polyamine system chelate nature compound, or a poly AMINO carboxylic-acid system chelate nature compound can discover a higher polish speed, and can raise polish processing efficiency.

[Translation done.]

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3. In the drawings, any words are not translated.

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## CLAIMS

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[Claim(s)]

[Claim 1] The abrasive material constituent which comes to contain at least one kind chosen from the group which consists of water, an alumina, a boehmite and a polyamine system chelate nature compound, or a poly AMINO carboxylic-acid system chelate nature compound.

[Claim 2] The abrasive material constituent according to claim 1 characterized by being at least one kind chosen from the group which a polyamine system chelate nature compound becomes from an ethylenediamine, 2, and 2'-bipyridine and a diethylenetriamine.

[Claim 3] The abrasive material constituent according to claim 1 or 2 characterized by being at least one kind chosen from the group which the poly AMINO carboxylic-acid system chelate nature compound becomes from a nitrilotriacetic acid, ethylene-diamine-tetraacetic acid, diethylenetriaminepentaacetic acids or these sodium salt, and potassium salt.

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[Translation done.]

CLIPPEDIMAGE= JP402158683A

PAT-NO: JP402158683A

DOCUMENT-IDENTIFIER: JP 02158683 A

TITLE: ABRASIVE COMPOSITION

PUBN-DATE: June 19, 1990

INVENTOR-INFORMATION:

NAME

YAMADA, TSUTOMU

OKAJIMA, TAIZO

OOTANI, KOUICHI

ASSIGNEE-INFORMATION:

NAME

MITSUBISHI KASEI CORP

COUNTRY

N/A

APPL-NO: JP63311665

APPL-DATE: December 9, 1988

INT-CL (IPC): C09K003/14

US-CL-CURRENT: 51/309

ABSTRACT:

PURPOSE: To provide an abrasive composition containing water,  $\alpha$ -alumina, boehmite and an inorganic or organic acid ammonium salt and effective in remarkably improving the polishing speed without lowering the finished state of the polished object such as smoothness and prevention of the surface defects.

CONSTITUTION: The objective composition contains (A) water, (B) 1-30wt.% (preferably 2-15wt.%) of fine powder of  $\alpha$ -alumina preferably calcined at 1200-1500°C and having an average particle diameter of 0.1-3 $\mu$ m and a maximum particle diameter of  $\leq$ 20 $\mu$ m, (C) 0.1-20wt.%

(preferably  
0.5-10wt.%) of boehmite forming a sol having particle  
diameter of  $\leq 0.01 \mu\text{m}$   
when dispersed in water and (D) 0.5-20wt.% (preferably  
1-10wt.%) of ammonium  
salt of preferably sulfuric acid, hydrochloric acid, nitric  
acid, phosphoric  
acid or acetic acid.

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DERWENT-ACC-NO: 1990-229189  
DERWENT-WEEK: 199815  
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TITLE: Compsn. of abrasive material - contains water  
alpha-alumina, boehmite  
and ammonium salt of inorganic or organic acid

PATENT-ASSIGNEE: MITSUBISHI KASEI CORP[MITU]

PRIORITY-DATA: 1988JP-0311665 (December 9, 1988)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
JP 02158683 A	June 19, 1990	N/A
005	N/A	
JP 2725192 B2	March 9, 1998	N/A
004	C09K 003/14	

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PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
JP 02158683A	N/A	1988JP-0311665
December 9, 1988		
JP 2725192B2	N/A	1988JP-0311665
December 9, 1988		
JP 2725192B2	Previous Publ.	JP 2158683
N/A		

INT-CL (IPC): B24B037/00; C09K003/14

ABSTRACTED-PUB-NO: JP 02158683A

BASIC-ABSTRACT: Compsn. contains water, alpha-alumina,  
boehmite and ammonium  
salt of inorganic acid or organic acid.

Alpa-alumina is obt'd. by burning alumina, e.g. boehmite or  
gamma-alumina, at at  
least 1,100 deg.C, pref. at 1,200-1,500 deg.C. It is  
pulverised into particles  
of 0.1-10 micron, pref. 0.1-3 micron, in average grain  
size, and of up to 30  
micron, pref. up to 20 micron, in max. grain size.  
Ammonium salt of inorganic

acid or organic acid is pref. ammonium sulphate, ammonium hydrochloride, ammonium nitrate, ammonium phosphate or ammonium acetate.

USE/ADVANTAGE - The compsn. is used for polishing metal, glass, plastic or esp. memory hard disc. It is high in abrasive efficiency and forms high polished surface.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS:

COMPOSITION ABRASION MATERIAL CONTAIN WATER ALPHA ALUMINA  
BOEHMITE AMMONIUM  
SALT INORGANIC ORGANIC ACID

DERWENT-CLASS: L02 L03 P61

CPI-CODES: L02-F04; L03-B05A; L03-G04;

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1425U; 1648U ; 1731U ;  
1786U

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1990-099157

DERWENT-ACC-NO: 1992-376361  
DERWENT-WEEK: 199933  
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TITLE: Abrasive compsn. having high abrasive speed and  
providing good abraded  
surface - comprises alumina dispersed in aq. medium and  
abrasive promoter  
comprising aluminium sulphate and/or chloride and peroxide,  
etc. oxidising  
agent

PATENT-ASSIGNEE: MITSUBISHI KASEI CORP[MITU]

PRIORITY-DATA: 1991JP-0036265 (March 1, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
JP 04275387 A	September 30, 1992	N/A
005	C09K 003/14	
JP 2917066 B2	July 12, 1999	N/A
004	C09K 003/14	

APPLICATION-DATA:

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APPL-DATE		
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March 1, 1991		
JP 2917066B2	Previous Publ.	JP 4275387
N/A		

INT-CL (IPC): B24B037/00; C09K003/14

ABSTRACTED-PUB-NO: JP 04275387A

BASIC-ABSTRACT: Compsn. comprises alumina dispersed in an  
aq. medium and  
abrasive promoting agent which comprises (1) Al sulphate  
and/or Al chloride and  
(2) peroxide, HNO<sub>3</sub>, nitrate, nitrite and/or aromatic nitro  
cpd. as a  
water-soluble oxidising agent.

USE/ADVANTAGE - For precision abrasive processing for memory hard disc, laser components, etc.. The abrasive compsn. has high abrasive speed and forms good abraded surface.

In an example, alpha-alumina having average particle dia of 1.5 micron and max. particle dia. of 10 microns was dispersed in water in the presence of 10%, based on the alpha-alumina, of crystalline cellulose by a high-speed mixer to obtain slurry contg. 8 wt.% alpha-alumina. The slurry was added to 3.0 wt.% aluminium sulphate and 0.2 wt.% H2O2 to obtain the objective abrasive compsn.. When a memory hard disc was abraded with the abrasive compsn., the average abrasion speed was 1.0 micron/min., compared with 0.5 micron/min. for the control abrasive which did not contain H2O2.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS:

ABRASION COMPOSITION HIGH ABRASION SPEED ABRASION SURFACE  
COMPRISE ALUMINA  
DISPERSE AQUEOUS MEDIUM ABRASION PROMOTE COMPRISE ALUMINIUM  
SULPHATE CHLORIDE  
PEROXIDE OXIDATION AGENT

DERWENT-CLASS: L02 L03 P61

CPI-CODES: L02-F04;

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1544U; 1677U ; 1724U ;  
1732U ; 1892U

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1992-167006  
Non-CPI Secondary Accession Numbers: N1992-286884

CLIPPEDIMAGE= JP404275387A

PAT-NO: JP404275387A

DOCUMENT-IDENTIFIER: JP 04275387 A

TITLE: ABRASIVE COMPOSITION

PUBN-DATE: September 30, 1992

INVENTOR-INFORMATION:

NAME

YAMADA, TSUTOMU

OKAJIMA, TAIZO

OOTANI, TAKANORI

MORINAGA, HITOSHI

ASSIGNEE-INFORMATION:

NAME

MITSUBISHI KASEI CORP

COUNTRY

N/A

APPL-NO: JP03036265

APPL-DATE: March 1, 1991

INT-CL (IPC): C09K003/14;B24B037/00

ABSTRACT:

PURPOSE: To obtain abrasive composition having improved polishing speed and giving a polished product having excellent surface state by dispersing alumina in an aqueous medium and compounding aluminum sulfate, etc., and a specific water-soluble oxidizing agent as polishing accelerators to the dispersion.

CONSTITUTION: The objective composition can be produced by dispersing 1-30-wt.%, preferably 2-15wt.% (based on the total composition) of alumina (preferably  $\alpha$ -alumina) in an aqueous medium and compounding the dispersion with a polishing accelerator consisting of (A) 0.01-20wt.%

(preferably 0.1-10wt.%) of aluminum sulfate and/or aluminum chloride and (B) usually 0.05-2 pts.wt., preferably 0.1-1 pt.wt. (based on 1 pt.wt. of the component A) of one or more water-soluble oxidizing agents selected from peroxide, nitric acid (salt), nitrite and aromatic nitro compound.

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CLIPPEDIMAGE= JP355023034A

PAT-NO: JP355023034A

DOCUMENT-IDENTIFIER: JP 55023034 A

TITLE: PRODUCTION OF ALUMINA SOL

PUBN-DATE: February 19, 1980

INVENTOR-INFORMATION:

NAME

YAMADA, KOICHI

YOSHIHARA, SHINRO

ISHIDA, TAKAHIRO

SATO, KAZUO

ASSIGNEE-INFORMATION:

NAME

SUMITOMO ALUM SMELT CO LTD

ASAHI KAGAKU KOGYO KK

COUNTRY

N/A

N/A

APPL-NO: JP53095073

APPL-DATE: August 3, 1978

INT-CL (IPC): C01F007/34

US-CL-CURRENT: 423/626

ABSTRACT:

PURPOSE: To obtain an alumina sol having superior stability on standing and a desired viscosity and capable of giving alumina powder with superior redispersibility by neutralizing an acidic water sol. aluminum salt with alkali followed by hydrothermal treatment in the presence of a water sol. aluminum salt of a monovalent org. acid.

CONSTITUTION: An acidic water sol. aluminum normal salt, e.g. aluminum chloride or aluminum nitrate, or a sol. basic aluminum salt of a monovalent org. acid,

e.g. aluminum acetate is neutralized with an alkaline substance at  $5 \sim 50^{\circ}\text{C}$  to obtain an alumina gel. The alkaline substance includes hydroxides, carbonates, bicarbonates, sulfites and borates of alkali (earth) metals and ammonia. After drying the resulting gel to an  $\text{Al}_2\text{O}_3$  content of  $15 \sim 90$ , pref.  $55 \sim 80\%$  a monovalent org. acid or a water sol. aluminum salt thereof, e.g. aluminum acetate is added in an amt. required to adjust the molar ratio of acid residue/Al to  $0.001 \sim 0.12$ , pref.  $0.002 \sim 0.10$ , followed by hydrothermal treatment at  $140 \sim 200^{\circ}\text{C}$  for  $30\text{min} \sim 4\text{hr}$ . Thus, an alumina sol is produced.

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